

scopic examination. The carbonic acid must be combined with the lime and magnesia. The low percentage of iron and alumina, and the traces of silica and other substances, show that there can be very few mineral particles in this Coral Sand.

Coral Muds and Sands cover a large area in all coral reef regions, estimated at about 2,700,000 square miles, including those from shallow water and also the area of the islands and of the lagoons and lagoon-channels. The coral reef region of the Pacific is by far the most extensive, and there Coral Muds and Sands attain their maximum development, being estimated to occupy about 1,500,000 square miles; in the Atlantic they cover about 800,000 square miles, and in the Indian Ocean about 400,000 square miles.

c. GEOGRAPHICAL AND BATHYMETRICAL DISTRIBUTION OF MARINE DEPOSITS.

The distribution in space and depth of the various types of marine deposits in the different oceans has been pointed out in detail in the foregoing descriptions. On Chart 1 this distribution is represented by means of colours, while the depth is on the chart indicated by cross-shading. In laying down the limits and extent of each type of deposit all the information available at the present time has been made use of. It may be admitted that the distribution of the various types of deposits as thus exhibited is to a large extent hypothetical, owing to the fact that there are large stretches in some oceans in which there are as yet no soundings; especially is this the case in the Eastern and Northern Pacific and in the great Southern Ocean to the south of the latitude of 50° S. When the depth of the ocean is known, and the composition of several samples from different depths has been ascertained, the nature of the deposits over the whole area can be indicated with a large degree of certainty.¹ Should future investigations make known any great differences in the depths from those shown on the chart, it may be taken for granted that the nature and composition of the deposits will be different from what is represented on this chart.

It may be urged, however, that our knowledge as to the depth of the ocean has in late years become very extensive, and that we have a large number of soundings in all the great oceans and inland seas. It is not likely that any great alteration will be made by future researches in the average depth of the ocean, although the position of the contour lines may undergo very considerable alterations, and volcanic cones rising high above the general depressed level of the sea-bed will certainly be discovered in many regions. It is indeed remarkable how little the position of the contour lines shown in the Challenger charts have been shifted by recent lines of soundings across the Atlantic, Indian, and Pacific Oceans.²

¹ See pp. 30-32.

² Murray, "On some recent Deep-Sea Observations in the Indian Ocean," *Scot. Geogr. Mag.*, vol. iii. pp. 553-561, 1887; "On Marine Deposits in the Indian, Southern, and Antarctic Oceans," *Scot. Geogr. Mag.*, vol. v. pp. 405-436, 1889; Buchanan, "The Exploration of the Gulf of Guinea," *Scot. Geogr. Mag.*, vol. iv. pp. 177 and 233, 1888.